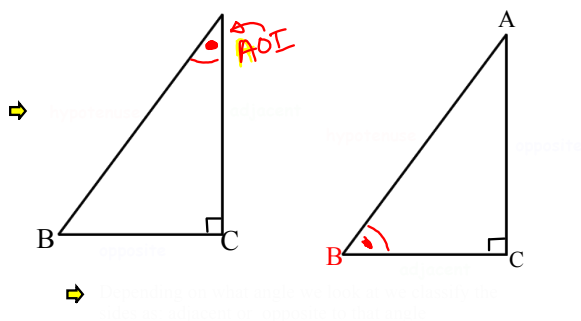


4.1 Primary Trigonometric Ratios



$$\sin A$$

$$\sin A = \frac{\text{opp}}{\text{hyp}}$$

$$\cos A$$

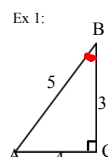
$$\cos A = \frac{\text{adj}}{\text{hyp}}$$

$$\tan A$$

$$\tan A = \frac{\text{opp}}{\text{adj}}$$

SOH CAH TOA

Ex 1:



Angle A

$$\sin A = \frac{3}{5}$$

$$\cos A = \frac{4}{5}$$

$$\tan A = \frac{3}{4}$$

Angle B

$$\sin B = \frac{4}{5}$$

$$\cos B = \frac{3}{5}$$

$$\tan B = \frac{4}{3}$$

Angle C

$$\sin C$$

$$\cos C$$

$$\tan C$$

Primary trig ratios

Sin and Cos

Tan

Ex 2:

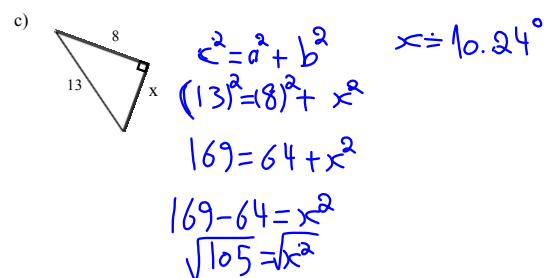
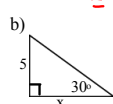
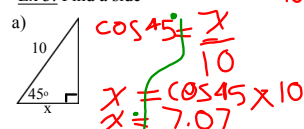
a) Use your calculator to find the ratio

$$\sin 45^\circ = 0.707 \quad \cos 78^\circ = 0.207 \quad \tan 32^\circ = 0.625$$

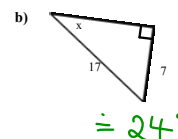
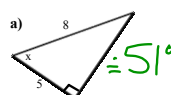
b) Use your calculator to find the angle:

$$\begin{aligned} \sin A = 0.9511 & \Rightarrow A = \sin^{-1}(0.9511) = 72^\circ \\ \cos B = -0.2079 & \Rightarrow B = \cos^{-1}(-0.2079) = 102^\circ \\ \tan C = 0.2679 & \Rightarrow C = \tan^{-1}(0.2679) = 15^\circ \end{aligned}$$

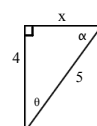
Ex 3: Find a side



Ex 4: Find an angle



Ex 5: Find all missing sides and angles

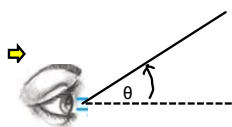


$$x = 3$$

$$\alpha = 53^\circ$$

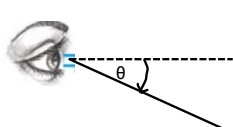
$$\theta = 37^\circ$$

Angle of Elevation



compared to looking straight out
how far do you need to look up

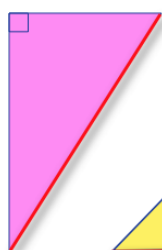
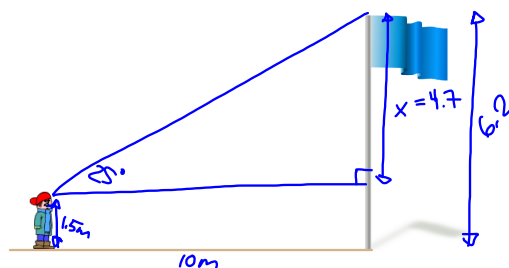
Angle of Depression



compared to looking straight out
how far do you need to look down

Ex 5:

Dave is standing 10 m away from a flagpole. His eyes are 1.5 m above the ground. The top of the flagpole has an angle of elevation of 25° . How tall is the flagpole?



Hmwk:
p 271 # 1, 2, 4, 5, 7 - 10, 17

